2001 Epidemiological Report on Tuberculosis

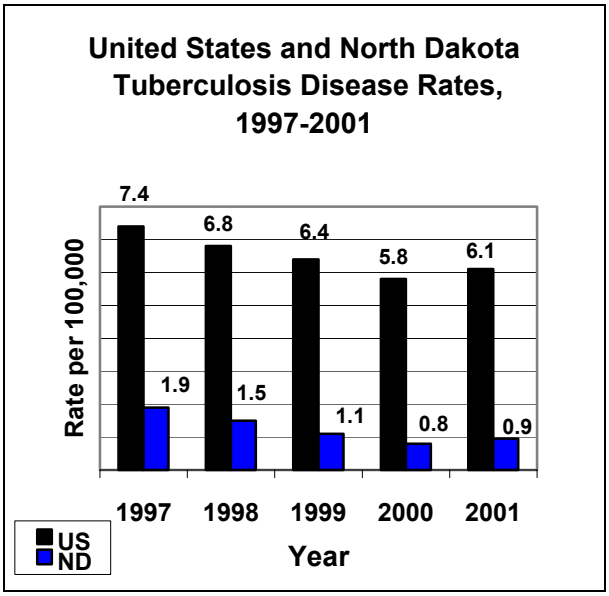
North Dakota Department of Health
Division of Disease Control
April 2002

TB in North Dakota

TB in North Dakota – 2001

North Dakota had six cases of tuberculosis (TB) disease reported in 2001. With an incidence rate of 0.9 per 100,000, North Dakota continues to be well below the national rate (Figure 1).

Figure 1



Four of the cases were pulmonary and two were extra-pulmonary. One involved the hip and the other was in a supraclavicular lymph node.

The ages of the TB cases ranged from 18 to 74, with a mean and median age of 54 and 55 respectively. Two cases were white, one was black and three were Native American.

Risk factors associated with TB disease in 2001 included belonging to a high-risk racial/ethnic group and being foreign-born. Other risk factors included reactivation of prior disease and prior TB infection resulting in TB disease (due to decreased immune response resulting from age and contributing underlying medical conditions).

No TB-related deaths were reported in 2001.

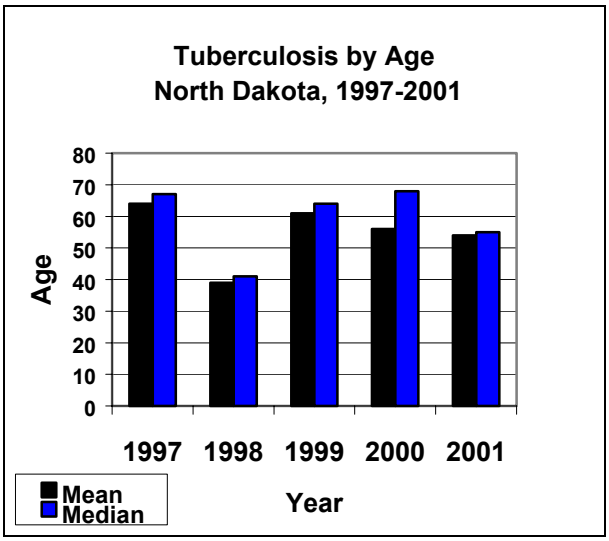
Five-Year Overview of TB in North Dakota

North Dakota has a low incidence of TB disease, making it difficult to determine disease trends based on annual data. TB trends can be identified more easily if data from a five-year period is analyzed.

During the past five years, 40 cases of TB disease have been reported in North Dakota (Jan. 1, 1997, through Dec. 31, 2001). The number of annual TB cases ranged from five to 12, resulting in an incidence rate of between 0.8 and 1.9 per 100,000.

Of the 40 cases, 27 were pulmonary (68%), 12 were extra-pulmonary (30%) and one was pulmonary/extra-pulmonary (2%). Forty-five percent of the TB cases were age 60 or older. The mean and median ages of TB cases over the past five years were 55 and 57 respectively. (Figure 2)

Figure 2



As shown in Figure 2, the mean and median ages in 1998 were lower than in other years. This is due to the diagnosis of disease in three children, all younger than 10.

Multiple risk factors were associated with TB disease, although an increase in the state's racial/ethnic populations over the years contributes to the increased number of TB cases reported in these racial/ethnic groups. (Table 1)

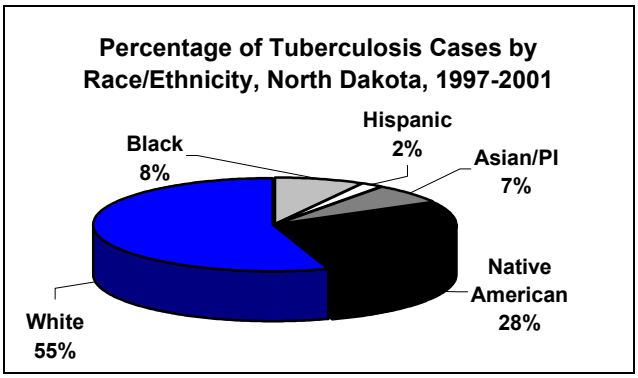
Table 1

Race	1990	2000	% Change
White	604,142	593,181	-1.8%
Native American/ Alaska Native	25,917	31,329	+20.9%
Asian/Pacific Islander	3,462	3,836	+10.8%
Black	3,524	3,916	+11.1%
Hispanic*	4,665	7,786	+66.9%

*Hispanic origin can be of any race
Source: N.D. State Data Center, 2000 Census Data

North Dakota's population in terms of race/ethnicity consists primarily of whites (92.4%), followed by Native Americans (4.9%), Asian/Pacific Islanders (PI) and blacks (accounting for 0.6% each). The race/ethnicity of TB cases during the past five years shows a disproportionately high number of TB cases within the minority populations, with more than one-fourth of the TB cases occurring in Native Americans. (Figure 3)

Figure 3



Drug-Resistant TB

Drug resistant TB (DR-TB) and multi-drug resistant TB (MDR-TB) present difficult problems for TB control because of the complicated treatment regimen for the index case and the treatment of latent TB infection in contacts to the index case that must be individualized based on the index case's medication history and drug susceptibility studies.

With the increase in foreign-born populations entering the United States and North Dakota, the potential exists for an increase of DR-TB. During the past five years, however, only one case of DR-TB has been reported in North Dakota. Table 2 depicts the DR-TB and MDR-TB during the past five years.

Table 2

DR-TB and MDR-TB, North Dakota, 1997-2001					
	1997	**1998**	**1999**	**2000**	**2001**
Drug Resistance					
Ethambutol	0	1	0	0	0
Isoniazid	0	0	0	0	0
Streptomycin	0	0	0	0	0
Multi-Drug Resistance	0	0	0	0	0

Latent TB Infection

Latent TB infection (LTBI) occurs when individuals are infected with *M. tuberculosis* bacteria through direct exposure to active TB disease. People with infection do not have active disease and are not infectious. Clinical findings of LTBI normally include a positive tuberculin skin test, absence of symptoms and a normal chest x-ray.

The number of TB infections reported in North Dakota has increased each year between 1997 and 2000 as shown in Table 3. This is due, in part, to an increase in the foreign-born population entering the state. The data in Table 3 include only reported cases of LTBI who received medication. Many others with LTBI are not deemed candidates for treatment.

Table 3

Reported Cases of LTBI North Dakota, 1997-2001				
1997	**1998**	**1999**	**2000**	**2001**
255	426	450	567	359*

*Provisional data.

Summary

In North Dakota, TB disease is seen primarily among the elderly, who were likely infected with TB earlier in life when the disease was more prevalent, and the foreign-born, who come from countries where TB is endemic.

It is important to remember that with North Dakota's low incidence of TB disease, the demographics of just one or two new cases can significantly alter the epidemiological profile of the disease and make it difficult to determine actual trends. This is demonstrated in Figure 2, when, in 1998, the diagnosis of disease in children younger than 10 decreased the mean and median ages of TB cases by approximately 20 years.

TB control in North Dakota is accomplished through collaborative efforts among health care providers and state and local health departments. Each reported TB case is monitored closely to ensure appropriate treatment of disease, contact investigation with appropriate follow-up for treatment of LTBI and completion of therapy for both LTBI and TB disease.

Upcoming Events

Annual TB Workshop, **"Communities Working Together to Stop TB"**

* May 15, 2002
  Doublewood Inn, Fargo, N.D.

* May 16, 2002
  Doublewood Inn, Bismarck, N.D.

For more information, call the North Dakota Department of Health at 800.472.2180 or visit the North Dakota Department of Health Tuberculosis Program website at www.health.state.nd.us/ndhd/prevent/disease/tb

Fatal and Severe Liver Injuries Associated With Rifampin and Pyrazinamide For Latent Tuberculosis Infection

Adapted from MMWR Morbidity and Mortality Weekly Report, August 31, 2001/Vol.50/No.34

During February 12 through August 24, 2001, a total of 21 cases of liver injury associated with a two-month rifampin-pyrazinamide (RIF-PZA) regimen for the treatment of latent tuberculosis infection (LTBI) was reported to CDC. These 21 cases are in addition to two previously reported RIF-PZA-associated cases (1). Cases of liver injury have occurred each year since 1999. CDC also received reports of 10 cases associated with other LTBI treatment regimens; however, risk for liver injury cannot be compared among treatment regimens in part because the number of patients treated for LTBI with each treatment regimen is unknown. This report provided preliminary information about the 21 cases associated with RIF-PZA and the revised recommendation on selecting appropriate LTBI therapy for patients and monitoring the use of RIF-PZA to treat LTBI (2). In most instances, the nine-month isoniazid (INH) regimen is preferred for the treatment of patients with LTBI. RIF-PZA may be used in selected cases and requires more intensive clinical and laboratory monitoring than previously recommended.

A case was defined as liver injury (i.e., clinical and laboratory findings consistent with hepatitis) leading to hospital admission or death of a patient being treated for LTBI with RIF-PZA. The median age of the 12 patients was 44 years (range: 28-73 years) and 12 were men. For patients in which the information was known, jaundice was reported in 15 of 18, and human immunodeficiency virus (HIV) test results were negative for all 11 who were tested. One patient had been diagnosed with hepatitis C disease at the start of RIF-PZA treatment. Three of the 21 RIF-PZA-associated cases occurred when patients received this regimen after recovering from INH-associated liver injury. One case was associated with a patient who received RIF-PZA after taking INH without problems.

Of the 21 patients with RIF-PZA-associated liver injury, 16 recovered and five died of liver failure. No patient received a liver transplant. The five patients who died had LTBI diagnosed under the current recommendations, and each had indication for RIF-PZA treatment (2). Patient 1 was a 68-year-old man who had diabetes and a positive TST result, Patient 2 was a 62-year-old woman who had a TST conversion detected by employee screening, and Patient 3 was a 36-year-old man who had a TST conversion during incarceration. Patient 4 was a 32-year-old woman who had emigrated from a high-prevalence country to the United States in 2000 and had a positive TST result of 20 mm induration, and Patient 5 was a 34-year-old man who had emigrated from a high-prevalence country to the United States in 1988 and had a positive TST result of 22 mm induration. Patient 3 had HIV risk factors but had a negative serology result; the other four did not have HIV risk factors. Patients 2, 4, and 5 were tested and had negative serology results. Patients 2 and 3 received RIF-PZA after recovering from INH-associated liver injury.

PZA dosages for the five patients were 19, 18, 23, 29 and 16 mg/kg/d (recommended dose: 15-20 mg/kg/d). After liver injury was

diagnosed, all patients were tested for hepatitis A (acute), B (acute and chronic), and C. Patients 2 and 5 had serologic evidence of previous hepatitis A. Patient 5 had serologic evidence of past hepatitis B. Patient 1 had idiopathic nonalcoholic steatotic hepatitis confirmed by biopsy in 1997, and Patient 3 used injection drugs and alcohol, although reportedly not during RIF-PZA treatment. Patient 2 had no risks for chronic liver disease and had neither a liver biopsy nor an autopsy. Patients 4 and 5 had autopsies; microscopic examination of the liver of Patient 5 revealed acute hepatic necrosis, and results are pending for Patient 4. Patients 1 and 2 were taking other medicines that have been associated with idiosyncratic liver injury. All five patients had onset of liver injury during the second month of the two-month course of treatment. Patients 1 and 3 continued RIF-PZA an estimated three days and fourteen days respectively after symptom onset; the exact duration of RIF-PZA treatment could not be determined for Patients 2 and 4. Patient 5 developed symptoms at the completion of treatment. Patients 1, 2, 4 and 5 received 30-day supplies of RIF-PZA. Patient 3 received directly observed therapy daily, but a language barrier possibly hampered patient education and communication about symptoms. Patient 4 also may have faced a language barrier.

Revisions in American Thoracic Society/CDC Recommendations:

1. The two-month RIF-PZA treatment regimen for LTBI should be used with caution, especially in patients concurrently taking other medications associated with liver injury and those with alcoholism even if alcohol use is discontinued during treatment. RIF-PZA is not recommended for people with underlying liver disease or for those who have had INH-associated liver injury. People being considered for treatment with RIF-PZA should be informed of potential hepatotoxicity and asked whether they have had liver disease or adverse effects from INH.

2. For people not infected with HIV, nine months of daily INH remains the preferred treatment for LTBI; four months of daily RIF is an acceptable alternative. Two months of daily RIF-PZA may be useful when completion of longer treatment courses is unlikely and when the patient can be monitored closely.

3. Available data do not suggest excessive risk for severe hepatitis associated with RIF-PZA treatment among HIV-infected persons. In a large multinational trial, HIV-infected patients treated with RIF-PZA had lower rates of serum aminotransferase (AT) elevations than those given INH alone (3). The RIF-PZA regimen also was well tolerated when given twice weekly to HIV-infected persons in Zambia and Haiti (4,5). However, experience from trials may not translate to all clinical practice settings, and it may be prudent to use nine months of daily INH for treatment of HIV-infected persons with LTBI when completion of treatment can be assured.

4. No more than a two-week supply of RIF-PZA (with a PZA dose $\leq$ 20 mg/kg/d and a maximum of 2 gm/d) should be dispensed at a time to facilitate periodic clinical assessments. Patients should be

reassessed in person by a health-care provider at two, four and six weeks of treatment for adherence, tolerance, and adverse effects, and at eight weeks to document treatment completion. At each visit, health-care providers conversant in the patient's language should instruct patients to stop taking RIF-PZA immediately and seek medical consultation if abdominal pain, emesis, jaundice or other hepatitis symptoms develop. Provider continuity is recommended for monitoring.

5. A serum AT and bilirubin should be measured at baseline and at two, four and six weeks of treatment in patients taking RIF-PZA. Because some side effects may occur in the second month of treatment, patients should be monitored throughout the entire course of treatment. Asymptomatic serum AT increases are expected and usually do not require that treatment be stopped (2,3). However, treatment should be stopped and not resumed for any of these findings: AT greater than five times the upper limit of normal range in an asymptomatic person, AT greater than normal range when accompanied by symptoms of hepatitis, or serum bilirubin greater than normal range.

Crucial Considerations in Deciding Whom To Test and Treat for LTBI:

1. The purpose of targeted testing is to find and treat people who have both LTBI and high risk for TB disease (e.g., recent exposure to a contagious case) (2). People at low risk for developing TB and who have had a TST for other reasons, such as baseline TST of health-care workers, are not necessarily candidates for treatment if found to be infected (2).

2. Treatment is recommended for foreign-born people from countries with a high prevalence of TB who have LTBI and who have been in the United States less than five years (2). After five years, treatment decisions should be made on the same basis as for other patients.

3. Because sporadic severe INH-associated liver injury still occurs, patients taking INH should be monitored as recommended (2).

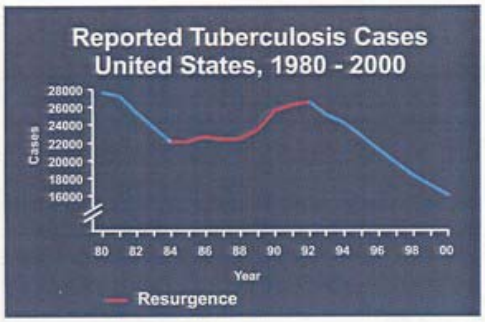
References

1. CDC. Fatal and severe hepatitis associated with rifampin and pyrazinamide for the treatment of latent tuberculosis infection-New York and Georgia, 2000. MMWR 2000; 50:289-91.
2. American Thoracic Society, CDC. Targeted tuberculin testing and treatment of latent tuberculosis infection. Am J Resp Crit Care Med 2000; 161:S221-S247.
3. Gordin F, Chaisson RE, Matts JP, et al. Rifampin and pyrazinamide versus isoniazid for prevention of tuberculosis in HIV-infected persons: an international randomized trial. JAMA 2000; 283:1445-50.
4. Mwinga A, Hosp M, Godfrey-Faussett P, et al. Twice weekly tuberculosis preventive therapy in HIV infection in Zambia. AIDS 1998; 12:2447-57.
5. Halsey NA, Coberly JS, Desormeaux J et al. Randomized trial of isoniazid versus rifampin and pyrazinamide for the prevention of tuberculosis in HIV-1 infection. Lancet 1998; 351:786-92.

TB Elimination: Now Is the Time!

Many people think that tuberculosis (TB) is a disease of the past — an illness, like smallpox, that no longer threatens us today. One reason for this belief is that, in the United States, we are currently seeing a decline in TB, and we are at an all-time low in the number of new cases. However, that very success makes us vulnerable to the complacency and neglect that come with declining numbers of visible persons suffering with TB. But it also gives us an opportunity to eliminate TB in this country. Now is the time to take decisive actions, beyond our current efforts, that will ensure that we reach this attainable goal.

The Price of Neglect

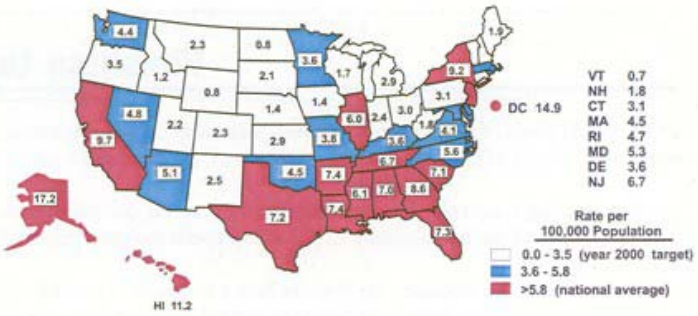


- In the 1970s and early 1980s, the nation let its guard down and TB control efforts were neglected. The country became complacent about TB, and many states and cities redirected TB prevention and control funds to other programs.
- Consequently, the trend toward elimination was reversed and the nation experienced a resurgence of TB, with a 20% increase in TB cases reported between 1985 and 1992. Many of these were persons with difficult-to-treat drug-resistant TB.

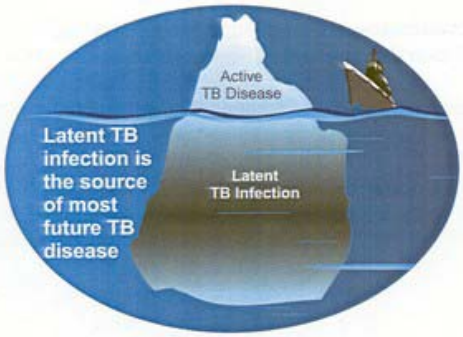
Back on Track Toward Elimination

- The nation's mobilization of additional resources in the 1990s has paid off; 2000 represented the 8th consecutive year of decline and an all-time low in reported TB cases.
- In 2000, there were 16,377 cases of TB disease reported in the United States, declining 7% from 17,531 cases in 1999. This recent recovery has put us back on track toward TB elimination.

Tuberculosis Case Rates, United States, 2000



TB Continues to Lurk Below the Surface



- TB is caused by a germ called *Mycobacterium tuberculosis*. When a person with infectious TB disease (TB that can be spread) coughs or sneezes, tiny particles containing *M. tuberculosis* may be expelled into the air. If another person inhales air that contains these particles, transmission from one person to another may occur.
- Persons exposed to TB disease may develop latent TB infection (LTBI). There are an estimated 10 to 15 million persons in the United States with LTBI, and about 10% of these infected individuals will develop TB disease at some point in their lives. A much higher proportion develop TB disease if coinfected with HIV, the virus that causes AIDS.

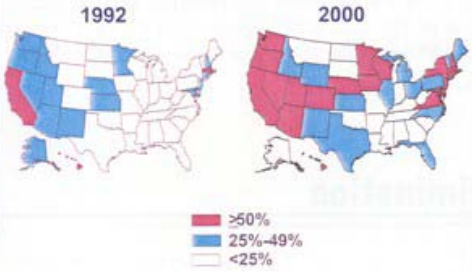
2001 Epidemiology Report on Tuberculosis – Page 7

TB Poses Greater Challenges Today Than Ever Before

The increasing proportion of cases in the U.S. among people born outside the U.S.

- Cases among foreign-born individuals increased from 22% of the national total in 1986 to 46% in 2000.
- Estimates suggest that more than half of U.S. cases may occur in foreign-born individuals by 2002.
- These changes reflect the global magnitude of TB as an important health problem.

Percentage of TB Cases Among Foreign-Born Persons



The continued threat of multidrug-resistant TB (MDR TB)

- If people with TB disease do not complete therapy for at least 6 months, they can develop and spread strains of TB that are resistant to available drugs.
- One case of MDR TB can cost up to $1 million to treat.
- Forty-five states and the District of Columbia have reported diagnosing and caring for persons with MDR TB.

The impact of declining TB cases on TB control and prevention

- Some areas are having increasing difficulty in assuring proficiency among health care providers in diagnosing and treating TB disease and LTBI.
- Diagnosis of infectious cases may be delayed because of health care providers' lack of experience, resulting in unnecessary transmission to others.

The interaction between HIV and TB

- People coinfected with HIV and TB are up to 800 times more likely to develop active TB disease during their lifetime than people without HIV infection.
- Approximately 10%-15% of the national total of TB cases are reported among people living with HIV.

Finishing the Job

Over 16,000 cases of TB occurred in 2000, and every case is a potential outbreak if not promptly recognized and treated. The 50 states and District of Columbia continue to report TB cases each year. We must finish the job by:

Maintaining Control: By strengthening current TB control, treatment, and prevention systems, we ensure the critical interruption of the transmission of TB and prevent the emergence of MDR TB.

Accelerating the Decline: By finding better methods of identifying and treating LTBI and improving strategies to reach at-risk populations, we will speed our progress toward elimination.

Developing New Tools for Diagnosis, Treatment, and Prevention: Through research to develop more effective methods of screening for LTBI, better drugs to treat LTBI, and an effective TB vaccine, we will find vital ways to stop the progression from latent infection to contagious disease.

Engaging in Global TB Prevention and Control: In providing leadership, contributing technical support, and forming international partnerships, we improve global health; worldwide control of TB is in the Nation's self-interest.

Mobilizing Support for TB Elimination: By reaching leaders of high-risk groups, we can offer hope that a disease that burdens their community can be eliminated.

Monitoring Progress: By assessing the impact of our elimination efforts, we can continually monitor our progress and identify and address any lapses in our efforts.

CDC TB Elimination

Division of TB Elimination Web site:
http://www.cdc.gov/nchstp/tb

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2001 Epidemiology Report on Tuberculosis – Page 8

New TB Guidelines Offer More Nuances, Treatment Options

TB Monitor, September 2001, Vol. 8, No. 9

New TB treatment guidelines due out early next year will recommend lengthening treatment by an extra two to three months for patients who are still sputum-culture positive after two months of treatment.

For HIV-negative patients without cavitary disease, the new guidelines also will give the go-ahead to streamlining the continuation phase of treatment by substituting once-weekly rifampentine (RPT) and isoniazid (INH) for twice-weekly INH and rifampin (RIF).

Together, the two additions will provide a more nuanced approach to TB treatment, says the chief of the research and evaluation branch of the Division of TB Elimination at the Centers for Disease Control and Prevention (CDC) in Atlanta.

The TB Trial Consortium conducted a clinical trial of rifampentine, a derivative of rifamycin with a half-life five times longer than that of RIF. (The consortium is an agency at the CDC that conducts trials on promising TB drug candidates.)

The study found that among patients with no radiographic evidence of cavitary disease, once-weekly RPT and INH were as safe, and almost as effective in preventing relapse or treatment failure, as twice-weekly RIF and INH. Across the United States, about 45 percent of patients fit the non-cavitary disease category, CDC TB experts say.

Other new points in the forthcoming guidelines are expected to include:

- Additional emphasis on the public-health dimension of TB treatment.
- Discussions of the role of the fluoroquinolones in treating drug-resistant disease.
- Detailed discussions of drug interactions and rifabutin's role in the treatment of HIV-positive TB patients.
- Stronger recommendations for use of fixed-dose combination drugs.
- Stronger emphasis on the use of directly observed therapy as an initial management strategy.

The last comprehensive treatment guidelines for adults and children date back to 1994. Like the older document, the new one was developed mainly by TB experts at the CDC working with their counterparts at the American Thoracic Society.

Other professional organizations also supplied input, and for the first time, the Infectious Disease Society of America served as a cosponsor of the new document. The guidelines are nearing final-draft form and should be completed by early winter.

Did You Know?

A bout of tuberculosis at the age of 12 kept Tom Jones indoors for two years and nearly claimed his life. He eventually recovered and went on to be one of the most famous pop singers of the past four decades.

A Blood Test for Detecting Latent TB Infection

TB Monitor, January 2002, Vol. 9, No. 1

The makers of the new, one-step blood test for detecting latent TB infection are about to start marketing their product to potential U.S. users at $10 a test.

The product Quantiferon was approved by the U.S. Food and Drug Administration (FDA) last October as a straightforward alternative to the tuberculin skin test (TST).

In accordance with FDA directives, Cellestis Ltd., the Melbourne, Australia-based firm that makes Quantiferon, plans to go ahead with trials of Quantiferon in the two groups for whom the regulatory agency did not grant approval for use: children and HIV-positive people.

Quantiferon's U.S. price will run about $10 a test. A spokesperson for the company points out that when the cost of labor is factored in, it will be roughly equal to the cost of administering a TST and then retuning to read it.

Cellestis Ltd. is hoping to appeal to anyone who works in public health where skin testing is done on a large scale, including jails and immigration centers. Quantiferon is a one-step blood test and doesn't require a return visit. This would eliminate the problem of unread skin tests associated with TST.

Cellestis is continuing work on an improved version of Quantiferon that might hit the shelves in about three years. The new version would do a better job of distinguishing subjects who are merely BCG-vaccinated from those who are latently infected with TB, even though CDC trials show Quantiferon already out performs the TST at that task. The next generation test will work by incorporating recombinant proteins present in TB but absent in BCG.

Contact Investigations: What You Should Know

Adapted from "Contact Investigations for Tuberculosis," Published by the CDC

Contact investigations are an excellent way to find people with TB infection and TB disease. In a contact investigation, people who were exposed to someone who has infectious TB disease (contacts) are identified and evaluated for TB infection and TB disease. Contacts are at high risk for infection with *M. tuberculosis* and, if recently infected, are also at high risk for developing TB disease. Therefore, it is important to identify and evaluate contacts so they can be given treatment for TB disease or for latent TB infection (LTBI), as appropriate.

How Quickly Should a Contact Investigation Be Carried Out?

A contact investigation should begin as soon as TB is diagnosed or strongly suspected in a patient. The contact investigation interview should be initiated **no more than three working days** after the case is reported to the health department. Close contacts should be examined **within seven working days** after the index case has been diagnosed. A prompt contact investigation is important because some contacts, such as

young children or HIV-infected and other immunosuppressed contacts, may develop TB disease very quickly after being exposed and infected with *M. tuberculosis*.

Steps in a Contact Investigation

A successful contact investigation requires the careful gathering and evaluation of detailed information, often involving many people. In general, contact investigations follow a process that includes these steps:

- The first step in a contact investigation is the **medical record review.** Knowing about the patient's infectiousness helps health care workers decide which contacts are at risk.
- The **patient interview** is one of the most critical parts of the contact investigation because the health care worker who interviews the patient serves as the main link between the health department and the contacts. There are three main reasons for interviewing the TB patient: to find out more about their ***symptoms***, to find out ***places*** they spent time while infectious, and to identify ***contacts***.
- The **field investigation** is done to identify contacts and evaluate the environmental characteristics of the place in which exposure occurred.
- Assessing the **risk of transmission** is crucial because it helps determine which contacts should be given high priority for testing and evaluation. The risk of transmission depends on three main factors: ***infectiousness*** of the TB patient, the ***environmental characteristics*** of each place and the characteristics of the contact's ***exposure***.
- **High priority contacts** are the contacts that are most at risk for developing TB infection or disease. Highest priority should be given to contacts who are most likely to be infected and contacts who are at high risk of developing disease.
- Contacts should be **evaluated** for LTBI and TB disease. This evaluation includes at least a medical history and a Mantoux tuberculin skin test.
- **Treatment** for LTBI should be considered for contacts who have a positive tuberculin skin test reaction and no evidence of TB disease. Treatment should also be considered for high-risk contacts who have a negative tuberculin skin test reaction, such as children younger than 4, HIV-infected people and other high-risk contacts who may develop TB disease very quickly after infection.
- The **decision about whether to expand testing** should be made by clinical and supervisory staff based on an assessment of all available information.
- An **evaluation of the contact investigation** should be conducted to determine its overall effectiveness.

Did You Know?

Frederic Chopin, the Polish composer and pianist, began composing music at the age of 7. At the age of 29, Chopin became gravely ill and showed signs of tuberculosis. Despite his illness, he continued to compose a number of masterpieces. He gave his last concert in 1848 and died of pulmonary TB in 1849, at the age of 39**.**

Remicade Takers To Get TB Tests

Available at http://www.body1.com

Rheumatoid arthritis patients must be tested for tuberculosis before they begin taking a treatment called Remicade.

Patients using Remicade are at least four times more likely than average Americans to get active tuberculosis, the Food and Drug Administration estimates. Apparently the drug suppresses users' immune systems enough that if they are unknowingly infected with latent TB, the respiratory illness can suddenly flare up.

The warning is serious because untreated, TB can kill, and, because it is an airborne illness, these patients could spread it to and infect family and friends.

Worldwide, 88 cases of tuberculosis have been reported among the estimated 170,000 people who have tried Remicade. Fifteen of those people died.

Remicade is a bioengineered drug that circulates through a patient's blood system to absorb an immune system protein called tumor necrosis, a factor responsible for much of the swelling associated with rheumatoid arthritis.

But that immune suppression, so important in fighting rheumatoid arthritis, can leave users at a higher risk for serious infections. Remicade's label has long carried warnings about various infections, but it now will carry a boxed warning in bold type about the TB risk, the strongest warning possible for a prescription drug.

North Dakota Department of Health Division of Microbiology

The North Dakota Department of Health, Division of Microbiology (or Public Health Laboratory [NDPHL]) is prepared to assist in the early detection of TB by reducing laboratory turnaround time for reporting positive smear, culture, identification and susceptibility results. The American Thoracic Society recommends using a laboratory such as the NDPHL, which examines a minimum of 20 mycobacteriology specimens per week to remain proficient. It is important to find a full-service reference laboratory that is both timely and accurate.

Services available through the NDPHL:

- Results of acid-fast stains reported within 24 hours of receipt. Service available Monday through Friday.
- Detection of mycobacteria within two weeks of specimen receipt using the BACTEC 460, a liquid medium automated procedure.
- Identification of *M. tuberculosis* and *M. avium* complex using the *AccuProbe* completed within one day once the organism is growing in culture.
- Rapid detection of *M. tuberculosis* through amplified *Mycobacterium tuberculosis* Direct (MTD) testing of smear positive and smear negative respiratory specimens.
- Susceptibility testing of new *M. tuberculosis* isolates to primary drugs. On average, results are available within three to four weeks of specimen receipt.

The History of Tuberculosis and Christmas Seals

Available at http://wiwi.essortment.com.historytubercul_rlro.htm

By the end of the last century, tuberculosis was the most dreaded disease known to mankind. It was also known as "TB" or the "White Plague." As the disease worsened, its victims became pale in skin color, hence the term. Tuberculosis is a disease that is caused by a bacteria. It is spread from person to person by the inhalation of bacteria in the air in which an infected person has coughed or sneezed. At that time, there was no cure for this terrible disease known for claiming the lives of its victims.

Makeshift sanitariums were established so tuberculosis patients could be isolated and cared for. One such place was located in Delaware. As this sanitarium began to run out of money, its treating physician, Dr. Joseph Wales, contacted his cousin, Emily Bissell. Bissell was an experienced fund-raiser for the American Red Cross. She remembered reading about how money was raised in Denmark for children who were afflicted with tuberculosis and decided to try the same method.

The story goes that in December 1903, a postman by the name of Einar Holboell was sorting a huge pile of Christmas mail inside a post office near Copenhagen. Holboell took a break from his work and looked out the window. He spotted a young girl and boy who were trudging slowly through the snowy weather. All they had to protect themselves were the rags they were dressed in. This sight inspired the postman so much that he came up with the idea of selling special stamps that could be put on every piece of mail in addition to the required postage. The revenue collected from the sale of the stamps could be donated to help poor children.

The next year, more than four million stamps were sold. Some of the money was used to help build hospitals to treat children who suffered from tuberculosis.

Bissell created her own Christmas stamp. Because she worked for the Red Cross, the picture was a red cross in the middle of a half of a wreath of holly. Below the wreath, she wrote the words "Merry Christmas." Bissell was successful in convincing the national headquarters of the American Red Cross to allow her to use its red symbol, and, thus, the Christmas Seal was born in the United States.

In 1907, the first Christmas Seals were sold at a fund-raising table inside the Wilmington, Del., post office. The sale raised over three thousand dollars, and the money was used to help in the fight against tuberculosis.

Since that time, the sale of Christmas Seals has become the official source of fund-raising revenue for the battle against the tuberculosis disease.

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